

The Commonwealth of Virginia...

Chesapeake Bay Local Assistance Department



Bay Act News

"Healthy state and local economies and a healthy Chesapeake Bay are integrally related; balanced economic development and water quality protection are not mutually exclusive." - The Bay Act



Bay Act News Issue 3

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Program Notes:

**Scott Crafton,
Acting Executive Director**

As you know, CBLAD's budget was significantly reduced for the next biennium, by removing \$1,000,000/year from our grants to localities (\$532,000 in local grants; \$468,000 for agricultural conservation). Following the General Assembly's April veto session, I requested that DEQ and DCR consider reprogramming some federal grant funds toward Tidewater local governments. To establish good faith, I offered to start the process with \$60,000 in coastal grant funds that CBLAD was to get to hire an additional staff member to work on the new local compliance evaluation process.

The great news is that DEQ and DCR have agreed to collectively reprogram a total of \$231,055 toward Tidewater localities for Bay Act related grants. This includes the \$60,000 CBLAD would have otherwise gotten. Including our limited remaining grant funds, CBLAD will be able to fund nearly \$275,000 in grants during fiscal year 2003, benefiting 12 of the 24 proposals originally approved by our Board and 24 of the 37 localities that would have originally been funded.

This is a one-time opportunity, pending the approval of NOAA, the federal agency that provides these Coastal Program grant funds. We will still need to work with Secretary Murphy, the Governor, and members of the General Assembly regarding the potential restoration of Bay Act grant funds.

I consider this cooperation from our sister agencies unprecedented and wish to publicly acknowledge their help with this critical funding and say a hearty "Thank You" to Bob Burnley, Joe Maroon and their respective grants management staffs.

Staff Profiles: Christine Edwards

Christine Edwards, “Chris,” came to CBLAD fourteen years ago as the Accounting Manager. In 1998 Chris was promoted to her current position as Chief of Administration and Finance. Before coming to CBLAD,



Chris served as the Financial Manager for the Governor’s Employment and Training Department. Prior to State government she was employed by the Richmond Opportunities Industrialization Center, Inc. In her current role at CBLAD, Chris oversees personnel, procurement, fiscal, grants and the day-to-day administrative activities of the Department. Chris graduated from Virginia Union University and is a Certified Government Financial Manager (CGFM) and a member of the Association of Governmental Accountants (AGA) and the Commonwealth Management Association (CMA). She is a member of the Third Union Baptist Church in King William, Virginia. Chris is married with two adult children and a Pekingese named Gizmo.

Departmental Guidance and Policy: Stormwater Management Program Guidance

Due to recent changes in the Chesapeake Bay Preservation Area Designation and Management Regulations related to stormwater management, CBLAD will be issuing updated guidance for implementation of the performance criteria relating to stormwater quality. Specifically, the Regulations were amended to eliminate the narrative pollutant removal criteria previously provided and incorporate by reference the section pertaining to water quality contained within the Virginia Stormwater Management Regulations (4 VAC 3-20-71 - Water quality). The incorporation of the water quality section differs from the current requirements in two significant ways: (1) localities may now offer a technology-based compliance mechanism to satisfy CBPA stormwater criteria if they wish to amend local ordinances to accommodate this, and (2) revised efficiencies and updated Standards and Specifications for applicable Best Management Practices (BMPs) now apply and are available in the Virginia Stormwater Management Handbook. (cont’d on next page)



(cont'd from page 2) The Technology-based approach is a methodology whereby a designer selects a BMP from an appropriate technology tier and applies it to the entire site to attain compliance. The technology tiers are separated based on the range of impervi-



ous coverage in which various practices are applicable and effective at mitigating increased pollution loads from development. It is assumed that the technology approach, coupled with the BMP design and construction criteria in the Virginia Stormwater Management Handbook, will achieve the same level of water quality protection as the performance-based approach that has been required since the program's beginning. The technology approach is not viable in all instances, so readers are encouraged to review the draft stormwater guidance document available on the Chesapeake Bay Local Assistance Department's web site, and to review Technical Bulletin No. 4 available from the Department of Conservation and Recreation, for further information.

This change in the Bay Act regulations will not necessarily result in an associated change in the local Bay Act ordinance. Local governments need not modify existing ordinance language relating to the performance-based approach to determining compliance if it is generally consistent with the performance approach described in the Virginia Stormwater Management Regulations, 4 VAC 3-20-71.B. During the review of local ordinances for needed amendments pursuant to changes in the Bay Act regulations, CBLAD liaisons will identify any necessary changes to stormwater management language for local program staff. Localities that have previously adopted regional or alterna-

tive stormwater quality programs – instead of site-by-site stormwater management requirements – that were reviewed by the Chesapeake Bay Local Assistance Board and found to provide equivalent water quality protection, do not need to revise their local programs to satisfy the revised stormwater management language in the Regulations.

The Department recently drafted more in-depth guidance that addresses this issue. This guidance is currently available on the Department's web site. The development of this guidance was coordinated with the Department of Conservation and Recreation. All future guidance that relates to the application of the stormwater management criteria will also be coordinated with DCR and will be released either as guidance documents by CBLAD or published by DCR as technical addenda to the Virginia Stormwater Management Handbook. Localities are encouraged to obtain and familiarize themselves with the Handbook, which is available for free download at the web address listed below.

For immediate inquiries contact Catherine Harold, Environmental Engineer, at:
charold@cblad.state.va.us
 or call her at 1-800-CHESBAY

On the web:
 Chesapeake Bay Local Assistance Department:
<http://www.cblad.state.va.us/guidance.htm>

Department of Conservation and Recreation
<http://www.dcr.state.va.us>

DCR Stormwater Web Site
<http://www.dcr.state.va.us/sw/stormwat.htm>

Doug Beisch, P.E., Senior Environmental Engineer, Webmaster, and Network Administrator is **departing CBLAD** August 2, 2002. Doug has accepted a position as Senior Water Resources Engineer with the Williamsburg Environmental Group. Many Thanks to Doug for his great contributions to the CBLAD over the past four and a half years! Doug, you will be sorely missed! Best of Luck in the private sector!

Small Streams Play Big Role in Ecosystem Health

A growing body of evidence supports the preservation and protection of “first order” streams, which are most often intermittent or ephemeral (wet weather) stream channels. According to Bruce Peterson of the Ecosystems Center at the Marine Biological Laboratory in Woods Hole, Massachusetts, “There’s a very



This intermittent stream in Caroline County illustrates the high volume of coarse organic material that smaller streams process and make bioavailable downstream.

strong relationship between the size of a stream and how rapidly that stream removes nutrients . . . The smaller the stream, the more quickly nitrogen can be removed and the less distance it will be transported down the stream.” According to Peterson, the finding could have important implications for land-use policies in watersheds from the Chesapeake Bay on the East Coast to Puget Sound in the West. “If we restored and took care of all the small streams on the landscape, our water quality coming down rivers would be greatly improved.” Peterson’s comments are based on the results, published in the April 6, 2001 edition of the *Journal of Science*, of a nationwide study of twelve streams.

Peterson notes that, collectively, recent national studies provide a radically different view of the role of small streams in controlling nutrient loadings. Because first and second order streams are generally short in length, but comprise 75 percent or more of the total stream and river miles, they have the greatest potential to protect and improve water quality when protected with a vegetated buffer. This is due to the fact that lower order streams are small in size and have less contributing area per unit volume of water.

A study by the National Science Foundation evaluated the absorption of ammonium, a form of nitrogen, by measuring how much stayed in the water and was washed downstream. The researchers sampled water, algae and other plant life, bacteria, fungi and insects for six weeks at each site. They discovered how quickly nutrients were assimilated and processed by organisms that live on the stream beds. Other studies have shown that first order streams are primary collectors of material and energy for the overall stream ecosystem. Because first order streams are scattered throughout the upper watershed, their collective contribution is significant. Under natural conditions small streams receive leaf litter directly from the forest canopy and often trap leaves blowing across the forest floor. These leaves are processed by a variety of macro invertebrates and microorganisms, which convert them to animal biomass and smaller particles of food.

According to the Stroud Water Research Center in Pennsylvania, this process is very important, since the amount of animal biomass and particles of food from the processing of leaf litter alone can be staggering. The Stroud Center has been studying the structure and function of small tributaries of the White Clay Creek watershed since 1968. Results in the first few years of the study indicated that the smallest streams are vital to the overall function of the entire stream ecosystem. According to David Densmore, Director and Curator of the U.S. Fish and Wildlife Service’s Pennsylvania

(Cont’d on next page)

(cont'd from page 4) Field Office, "This is especially important because most of the structural and functional activity in a stream ecosystem is associated with benthic substrata (bottom areas) as opposed to water column processes."

According to the Stroud Center, first order streams support a high diversity and productivity of flora and fauna and are a significant source of propagules for recolonizing disturbed areas downstream. The Center's studies also suggest that first order streams are important for maintaining genetic diversity. In the case of Pennsylvania's White Clay Creek watershed, over 32 percent of the total benthic surface area is represented by first order streams, where significant levels of primary production occur. The Center has been successful in documenting that each square meter of first order stream bottom is capable of producing significant levels of algae and bacteria, thus providing food to the nursery areas of amphibians and fish. Intermittent streams also influence the supply of sediment, water, and organic materials to downstream channels (Reid and Zimmer).

In Virginia, a number of localities in the Tidewater region have implemented programs that afford protection to some intermittent streams. Henrico and Chesterfield Counties both buffer intermittent streams through regional stormwater management programs. James City County has an established buffer program that requires, among other management strategies, a vegetative buffer along intermittent streams and unconnected wetlands. Fairfax County has recently initiated a major effort to update its stream system base map, distinguishing between perennial and intermittent streams. This project will inventory physical and ecological conditions in headwater streams.

According to the Chesapeake Bay Program's Riparian Handbook, stream order provides one of the more significant criteria in determining effective buffer width. One size may not fit all when considering the effectiveness of buffers in removing sediments and nutrients from streams. The handbook points out the importance of understanding spatial connections between the stream and its watershed when designing a stream buffer system. For first-order streams, the potential

impact of the vegetated buffer on chemical load or flow-weighted concentrations is directly proportional to the proportion of the excess precipitation from the contributing (drainage) area which moves through or near the root zone or surface of the buffer area. For all streams above first order, the contributing area is only one source of pollutants, with upstream reaches providing the other source. If there are no buffers upstream from a particular stream reach, the water entering the stream reach is likely to be already contaminated.

Therefore, while smaller buffers can provide sufficient protection for first order streams, the stream size, contributing drainage area and volume of water being buffered increases as stream order increases. This set of conditions makes it more difficult for buffers on high order streams to adequately control the greater volume of pollutants flowing through them. This suggests that it is very important to maintain at least minimal vegetative buffers adjacent to both intermittent streams and perennial streams in order to adequately provide for both habitat and effective water quality control for the entire stream ecosystem. CBLAD staff will continue to track research on streams and buffers and will discuss strategies and authorities for managing intermittent streams in a future article.

Sources cited:

Densmore, David. 1999. The Value of Headwater Streams: Results of a Workshop, State College, Pennsylvania.

National Science Foundation. 2001. Small Streams Contribute Far More Than Previously Thought To Cleaning Waterways. <http://www.sciencedaily.com/releases/2001/04/010406073905.htm>

Reid and Zimmer. 1994. Evaluating the Biological Significance of Intermittent Streams. USDA Forest Service, Pacific Southwest Research Station.

Sweeney, Bernard W. 1999. Stroud Water Research Center. Pennsylvania.

EPA Chesapeake Bay Program Highlights

The Bay Program's Implementation Committee (IC) had its first meeting under the leadership of Rebecca Hanmer, the new Bay Program Administrator and a long-time employee of the EPA on June 27th. The role of the IC was one topic of discussion on that agenda. The discussion followed a report from each of the subcommittees that report to the IC.

In Virginia, there is a lot of activity by a special task force that has been put together to address the "watershed" commitments. Called the Virginia CWiC task force, this group has devised a coordinated approach by the state agencies (DCR, DEQ, CBLAD, DGIF, DOF, VIMS) and others (e.g., PDCs, localities, community watershed organizations, and SWCDs) for creating implementation tools, marketing, training, and tracking progress in meeting those commitments.

A definition of "good development" and an outline for a system to measure the rate of harmful sprawl has been reviewed by the Land Growth & Stewardship Subcommittee.

CBLAD Guidance for the Revised Regulations

To assist localities in preparing changes to their local programs consistent with the revised regulations, CBLAD has been working on the development of new or updated guidance. This new guidance will replace the Local Assistance Manual of November 1989, Information Bulletins and the Technical Memoranda that have been previously issued.

Draft guidance has been developed on the following items:

- * Wetlands protection and mitigation
- * Nonconforming uses and structures
- * Exceptions
- * RPA: Onsite Buffer Area Delineation
- * RPA: Buffer Area Encroachment
- * Stormwater management requirements
- * Silvicultural operations
- * Intensely Developed Areas (IDAs)

The Board's Policy Committee will review these on July 24th and the full Board is to consider them on September 16th, 2002. Additional guidance will be reviewed this Autumn.

For more information about the guidance and to view the above draft guidance documents, visit our website at www.cblad.state.va.us

CBLAB Meeting Highlights

The Board held its 2nd Quarter meeting in Virginia Beach on Monday, June 17th. It approved modifications to the Fairfax County, Phase I Program involving civil penalties and criteria for approving the removal of trees in the RRA for sight lines and vistas. It also approved Phase II comprehensive plan revisions made pursuant to previous reviews for Caroline, Henrico, and Spotsylvania Counties. These counties are now fully consistent with the Act and Regulations.

Upcoming Events and Meetings

August 13th The next Northern Area Regional Committee (NARC) and Southern Area Regional Committee (SARC) meetings will be held at CBLAD conference room.

September 16th The Board Quarterly Meeting will be held in conference room "C" on the main floor, James Monroe Building.

Locality Focus: Fairfax County

Fairfax County is currently undertaking a number of studies and projects related to watershed protection and restoration. These include the Stream Protection Strategy (SPS) program, a wetlands assessment and monitoring program, a perennial streams mapping project, and the development of comprehensive management plans for the County's watersheds.

Fairfax County's Stream Protection Strategy (SPS) program, is an ongoing biological monitoring effort with the overall goal of identifying and assessing trends in stream conditions countywide. The baseline SPS study, completed in January 2001, documented current conditions throughout the county's streams based on biological indicators, and provided a foundation for prioritizing and implementing sound watershed management strategies. The results of the baseline study are also being used in the development of guidance for broad countywide application of selected watershed protection strategies through a CBLAD grant.

A three-year study to inventory existing wetland resources and characterize wetland response to degrees of urbanization was initiated in August 2000 by the County in partnership with George Mason University. The study will also examine the function, usefulness, and sustainability of wetlands in stormwater management and provide critical information on wetland management in urban watersheds.

The County has recently initiated a major effort to update its base map of all perennial and intermittent streams. In addition to the identification and mapping of perennial streams, this project will inventory physical and ecological conditions in headwater streams and could potentially result in a re-evaluation of the County's resource protection areas (RPAs) designated as a result of the Bay Act.

Fairfax County has also embarked on a significant effort to develop management plans for all thirty watersheds in the County over a five-year period. The overall goal for the development of watershed management

plans is to provide a consistent basis for the evaluation and implementation of solutions for protecting and restoring the receiving water systems and other natural resources of the County.

These proactive programs, along with a number of other public and private efforts in the County play an important role in protecting the streams and stream valleys of the County. This, in turn, contributes to the collective protection of the ultimate receiving water of the County's watersheds, the Chesapeake Bay. The protection of County streams and stream valleys enhances the quality of life for its residents, thereby contributing to one of the major goals of the County's Comprehensive Plan.

Fairfax County also recently adopted revisions to its Bay Act ordinance to include specific standards for the removal of trees and other vegetation from the buffer area for sight lines, views, vistas, paths, thinning and shoreline erosion control as well as removal of dead or diseased trees and shrubbery. In addition to these standards, the County's amendments also included specific requirements for buffer restoration, where violations have occurred. While the Department is currently working on development of more specific standards for these types of issues related to the buffer area, Fairfax County should be commended for taking the initiative and adopting standards.

For information relating to the County's SPS program, contact Matt Handy, at mhandy@fairfaxcounty.gov.

For more information relating to the County's recent Bay ordinance amendments contact John Friedman at John.Friedman@co.fairfax.va.us.
CBLAD Liaison: Shawn E. Smith, AICP, smith@cblad.state.va.us

Chesapeake Bay facts for Fairfax County:

Land area:	399 square miles
Land in Chesapeake Bay Preservation Area:	100%
Population (2000):	964,712
Character:	Large urbanized locality

Contact Information

Board Members

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The Honorable Daniel B. Nice,
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